

REMARKS/ARGUMENTS

Reconsideration of the above-identified application in view of the following remarks is respectfully requested.

By the present amendment the specification has been amended to change reference number 71 to 76 at page 10, line 16. Claim 8 has been amended. Claims 18-47 have been added.

It is respectfully submitted that claims 1-47 are allowable. Specifically, claim 1 recites an apparatus including a longitudinal member connectable with a bone portion. A fastener having a longitudinal axis is engageable with the bone portion to connect the longitudinal member to the bone portion. A housing has a first passage configured to receive the longitudinal member. The housing has a second passage with a longitudinal axis extending transverse to the first passage. The fastener extends through an opening in the housing into the second passage and is movable relative to the housing. The longitudinal axis of the fastener is positionable in any one of a plurality of angular positions relative to the longitudinal axis of the second passage. A spacer received in the second passage of the housing is engageable with the fastener and the longitudinal member. A member applies a force to prevent relative movement between the fastener and the housing when the longitudinal member is disengaged from the spacer and the spacer engages the fastener. The fastener and the housing are manually movable relative to each other against the force when the longitudinal member is disengaged from the spacer and the member applies the force. A clamping mechanism clamps the longitudinal member, the spacer and the housing to the fastener to prevent movement of the fastener relative to the housing.

U.S. Patent No. 6,485,491 to Farris et al. discloses a multi-axial bone anchor assembly 20 (Figs. 1-17) having a saddle member 22, a bone anchoring member 24, and a washer 26. The saddle member 22 has a channel 34 that receives a rod 36. The saddle member 22 also has a hole 38 perpendicular to channel 34 through which the anchoring member 24 extends. The anchoring member 24 is positionable in any one of a plurality of angular positions relative to the axis of the hole 38. A snap ring 28 engages a surface 83 on the washer 26 and extends into a groove 48 in the saddle member 22. The snap ring 28 applies a downward force to secure the washer 26 against the anchoring member 24, see column 7, lines 12-14.

In another embodiment, a non-planar snap ring 28' (Fig. 17A) may be used instead of the snap ring 28. The non-planar snap ring 28' has a series of undulations forming relative crests 129a and relative troughs 129b therein. Alternatively, the non-planar snap ring 28' could have other curved configurations, or could have extending finger-spring elements along it. The non-planar snap ring 28' allows less play between the saddle member 22, anchoring member 24, and washer 26 because the non-planar snap ring fills a greater portion of the groove 48 in the saddle member, see column 7, lines 32-43. Accordingly, the non-planar snap ring 28' reduces the amount of movement between the saddle member 22, anchoring member 24 and washer 26 when compared to the planar snap ring 28.

The Farris et al. patent also discloses a multi-axial bone anchor assembly 262 (Figs. 53-56) having a saddle member 22d, a bone anchoring member 24a, and a washer 26d. The saddle member 22d has a channel 34d that receives a rod 36. The saddle member 22d also has a hole 38d perpendicular to channel 34d through which the anchoring member 24a extends. The anchoring member 24a is positionable in any one of a plurality of angular positions relative to the axis of the

hole 38d. Snap ring 28 secures the washer 26d in the saddle member 22d. The snap ring 28 does not apply a downward force to secure the washer 26d against the anchoring member 24, see Fig. 53. A non-planar snap ring 28' (Fig. 17A), as discussed above, may alternatively be used to secure the washer 26d in the saddle member 22d. The Farris et al. patent states that the non-planar snap ring 28' allows less play between the saddle member 22d, anchoring member 24a, and washer 26d, see column 7, lines 37-43.

The Farris et al. patent does not describe or suggest a member applying a force to prevent relative movement between a fastener and a housing when a longitudinal member is disengaged from a spacer and the spacer engages the fastener. The Office Action states that the Farris et al. patent describes a snap ring that applies a force and has a gap. The snap rings 28 and 28' described in the Farris et al. patent do not apply a force to prevent relative movement between the fasteners 24 and 24a and the saddle members 22 and 22d. The Farris et al. patent states that the non-planar snap ring 28' reduces play between the saddle member 22, the anchoring member 24 and the washer 26 and does not describe or suggest that the non-planar snap ring 28' prevents movement between the saddle member 22 and the anchoring member 24. Furthermore, the Farris et al. patent does not describe or suggest a fastener and a housing being manually movable relative to each other against a force applied by a member when a longitudinal member is disengaged from a spacer and the member applies the force. The fasteners 24 and 24a and the saddle members 22 and 22d described in the Farris et al. patent do not move relative to each other against a force applied by the snap rings 28 and 28' to prevent relative movement between the fasteners and the saddle members when the rod 36 is disengaged from the washers 26 and 26d.

The Office Action states that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation. It is respectfully submitted that functional language in a claim must be considered. The Court of Customs and Patent Appeals in In re Land gave patentable weight to functional portions of claims by stating that the court does not regard the fact that portions of a claim are functional as a good ground to give them "no weight". In re Land, 151 USPQ 621 (C.C.P.A. 1966). Furthermore, the Court of Appeals for the Federal Circuit in In re Mills gave patentable weight to functional limitations in a claim to find the claim patentable over the prior art. In re Mills, 16 USPQ 2d 1430 (CAFC 1990). Accordingly, functional language in a claim must be considered. Thus, claim 1 is allowable.

Claim 2 recites that the member is a compressible member. None of the cited prior art describes or suggests an apparatus as set forth in claim 2 and including all the limitations of claim 1. Therefore, claim 2 is also allowable.

Claim 3 recites that the member is a spring member engaging the housing and the spacer. None of the cited prior art describes or suggests a spring member engaging a housing and a spacer and including all the limitations of claim 1. Therefore, claim 3 is allowable.

Claim 4 recites that the member includes a ring member extending into a groove in the spacer and a groove in the housing. None of the cited prior art describes or suggests a ring member extending into a groove in a spacer and a groove in a housing and including all the limitations of claims 1 and 3. Thus, claim 4 is allowable.

Claim 5 recites that the ring member has a gap to permit radial contraction and radial expansion of the ring member. None of the cited prior art describes or suggests a ring member having a gap to permit radial contraction and radial expansion of the ring member and including all the limitations of claims 1, 3, and 4. Therefore, claim 5 is also allowable.

Claim 6 recites that the spacer includes axially extending slots that receive a tool for inserting the spacer and the ring member into the housing. The slots intersect the groove in the spacer to permit engagement of the tool with the spring member to radially contract the spring member into the groove in the spacer. None of the cited prior art describes or suggests a spacer having axially extending slots that receive a tool for inserting the spacer and a ring member into a housing. Also, none of the cited prior art describes or suggests axially extending slots in a spacer intersecting a groove in the spacer to permit engagement of a tool with a spring member to radially contract the spring member into the groove.

U.S. Patent No. 5,135,489 to Jepson et al. describes a male luer 438 (Fig. 48) with a gripping collar 446. A series of axial grooves 450 are provided in the exterior surface of the collar 446 to improve gripping by a nurse, physician, or attending staff member. The Jepson et al. patent does not describe or suggest a spacer having axially extending slots that receive a tool for inserting the spacer and a ring member into a housing. Also, the Jepson et al. patent does not describe or suggest axially extending slots in a spacer intersecting a groove in the spacer to permit engagement of a tool with a spring member to radially contract the spring member into the groove.

It is respectfully submitted that there is no suggestion in the Farris et al. patent and the Jepson et al. patent to combine the teachings of the references. The Farris et al. patent describes multi-axial bone anchor assemblies and the Jepson et al.

patent describes a male luer in Fig. 48. The Farris et al. patent describes a washer for inserting into a saddle member and the Jepson et al. patent describes a male luer with a collar having a gripping surface. Accordingly, the Farris et al. patent and the Jepson et al. patent describe entirely different structures for entirely different uses. Thus, there is no suggestion in the Farris et al. patent and the Jepson et al. patent to combine the teachings of the references.

Assuming, arguendo, that the teachings of the Farris et al. patent and the Jepson et al. patent were combined, the resulting combination would lack features of the apparatus defined in claim 6. The resulting combination would not include a spacer having axially extending slots that receive a tool for inserting the spacer and a ring member into a housing since neither of the references describes a spacer having axially extending slots that receive a tool for inserting the spacer and a ring member into a housing. Also, the resulting combination would not include axially extending slots in a spacer intersecting a groove in the spacer to permit engagement of a tool with a spring member to radially contract the spring member into the groove since neither of the references describes axially extending slots in a spacer intersecting a groove in the spacer to permit engagement of a tool with a spring member to radially contract the spring member into the groove. Thus, claim 6 is allowable.

Claim 7 recites that the ring member is arched when the ring member is disengaged from the housing and the spacer. None of the cited prior art describes or suggests a ring member that is arched when the ring member is disengaged from a housing and a spacer and including all the limitations of claims 1, 3, and 4. Therefore, claim 7 is also allowable.

Claim 8 recites that the fastener includes a first part spherical surface engageable with a part spherical surface of the housing. None of the cited prior art describes or suggests a fastener having a first part spherical surface engageable with a part spherical surface of a housing and including all the limitations of claim 1. Thus, claim 8 is allowable.

Claim 9 recites that the fastener includes a second part spherical surface engageable with the spacer. None of the cited prior art describes or suggests a fastener having a second part spherical surface engageable with a spacer and including all the limitations of claims 1 and 8. Therefore, claim 9 is also allowable.

Claim 10 recites that the fastener includes a surface engageable with the spacer to limit relative movement between the fastener and the housing. None of the cited prior art describes or suggests a fastener having a surface engageable with a spacer to limit relative movement between the fastener and a housing and including all the limitations of claims 1, 8, and 9. Therefore, claim 10 is also allowable.

Claim 11 recites that the second part spherical surface has a diameter smaller than a diameter of the first part spherical surface. The surface engageable with the spacer to limit relative movement between the fastener and the housing extends between the first and second part spherical surfaces. None of the cited prior art describes or suggests a surface engageable with a spacer to limit relative movement between a fastener and a housing extending between first and second part spherical surfaces with the second part spherical surface having a diameter smaller than a diameter of the first part spherical surface and including all the limitations of claims 1 and 8-10. Thus, claim 11 is allowable.

Claim 12 recites that the spacer has an opening through which a tool extends to engage the fastener when the longitudinal member is disengaged from the spacer. None of the cited prior art describes or suggests a spacer having an opening through which a tool extends to engage a fastener when a longitudinal member is disengaged from the spacer and including all the limitations of claim 1. Therefore, claim 12 is also allowable.

Claim 13 recites that the spacer includes slots that receive a tool for inserting the spacer into the housing. None of the cited prior art describes or suggests a spacer including slots that receive a tool for inserting the spacer into the housing. As discussed above, there is no suggestion in the Farris et al. patent and the Jepson et al. patent to combine the teachings of the references. Assuming, arguendo, that the teachings of the Farris et al. patent and the Jepson et al. patent were combined, the resulting combination would not include a spacer including slots that receive a tool for inserting the spacer into a housing. Thus, claim 13 is allowable.

Claim 14 recites that the clamping mechanism includes a threaded member threadably engageable with the housing. None of the cited prior art describes or suggests a clamping mechanism including a threaded member threadably engageable with a housing and including all the limitations of claim 1. Therefore, claim 14 is also allowable.

Claim 15 recites that the threaded member engages the longitudinal member to clamp the longitudinal member against the spacer. None of the cited prior art describes or suggests a threaded member engaging a longitudinal member to clamp the longitudinal member against a spacer and including all the limitations of claims 1 and 14. Therefore, claim 15 is allowable.

Claim 16 recites that the threaded member and the housing have a buttress thread. None of the cited prior art describes or suggests a threaded member and a housing having a buttress thread and including all the limitations of claims 1 and 14. Thus, claim 15 is also allowable.

Claim 17 recites an apparatus including a longitudinal member connectable with a bone portion. A fastener having a longitudinal axis is engageable with the bone portion to connect the longitudinal member to the bone portion. A housing has a first passage configured to receive the longitudinal member. The housing has a second passage with a longitudinal axis extending transverse to the first passage. The fastener extends through an opening in the housing into the second passage and is movable relative to the housing. The longitudinal axis of the fastener is positionable in any one of a plurality of angular positions relative to the longitudinal axis of the second passage. A spring member applies a force to prevent relative movement between the fastener and the housing. The fastener and the housing are manually movable relative to each other against the force when the spring member applies the force. A clamping mechanism clamps the longitudinal member and the housing to the fastener to prevent movement of the fastener relative to the housing. None of the cited prior art describes or suggests an apparatus as set forth in claim 17.

The Farris et al. patent does not describe or suggest a spring member that applies a force to prevent relative movement between a fastener and a housing. The Office Action states that the Farris et al. patent describes a snap ring that applies a force and has a gap. As discussed above, the snap rings 28 and 28' described in the Farris et al. patent do not apply a force to prevent relative movement between the fasteners 24 and 24a and the saddle members 22 and 22d. Also, the Farris

et al. patent does not describe or suggest a fastener and a housing being manually movable relative to each other against a force when a spring member applies the force. The fasteners 24 and 24a and the saddle members 22 and 22d described in the Farris et al. patent do not move relative to each other against a force applied by the snap rings 28 and 28' to prevent relative movement between the fasteners and the saddle members.

The Office Action states that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation. It is respectfully submitted that functional language in a claim must be considered. The Court of Customs and Patent Appeals in In re Land gave patentable weight to functional portions of claims by stating that the court does not regard the fact that portions of a claim are functional as a good ground to give them "no weight". In re Land, 151 USPQ 621 (C.C.P.A. 1966). Furthermore, the Court of Appeals for the Federal Circuit in In re Mills gave patentable weight to functional limitations in a claim to find the claim patentable over the prior art. In re Mills, 16 USPQ 2d 1430 (CAFC 1990). Accordingly, functional language in a claim must be considered. Thus, claim 17 is allowable.

Claim 18 depends from claim 1 and recites that the member applies an axial force to the spacer to prevent the fastener and the housing from moving relative to each other. None of the cited prior art describes or suggests a member applying an axial force to a spacer to prevent a fastener and a housing from moving relative to each other. Therefore, claim 18 is allowable.

Claim 19 recites that the member engages a radially extending surface on the housing and a radially extending surface on the spacer. None of the cited prior art

describes or suggests a member engaging a radially extending surface on a housing and a radially extending surface on a spacer and including all the limitations of claims 1 and 18. Therefore, claim 19 is also allowable.

Claim 20 recites that the radially extending surface on the housing at least partially defines a circumferential groove in the housing. The radially extending surface on the spacer at least partially defines a circumferential groove in the spacer. None of the cited prior art describes or suggests a radially extending surface on a housing at least partially defining a circumferential groove in the housing and a radially extending surface on a spacer at least partially defining a circumferential groove in the spacer and including all the limitations of claims 1, 18, and 19. Thus, claim 20 is allowable.

Claim 21 recites that the spacer includes first and second radially extending surfaces and an axially extending surface defining the groove in the spacer. None of the cited prior art describes or suggests a spacer including first and second radially extending surfaces and an axially extending surface defining a groove in a spacer and including all the limitations of claims 1 and 18-20. Thus, claim 21 is allowable.

Claim 22 depends from claim 4 and recites that the spacer includes first and second radially extending surfaces and an axially extending surface defining the groove in the spacer. None of the cited prior art describes or suggests a spacer including first and second radially extending surfaces and an axially extending surface defining a groove in a spacer and including all the limitations of claims 1 and 3-4. Thus, claim 22 is also allowable.

Claim 23 depends from claim 17 and recites that the spring member applies an axial force to the spacer to prevent the fastener and the housing from moving relative to each other. None of the cited prior art describes or suggests a spring

member applying an axial force to a spacer to prevent a fastener and a housing from moving relative to each other. Thus, claim 23 is also allowable.

Claim 24 recites an apparatus including a longitudinal member connectable with a bone portion. A fastener having a longitudinal axis is engageable with the bone portion to connect the longitudinal member to the bone portion. A housing has a first passage configured to receive the longitudinal member. The housing has a second passage with a longitudinal axis extending transverse to the first passage. The fastener extends through an opening in the housing into the second passage and is movable relative to the housing. The longitudinal axis of the fastener is positionable in any one of a plurality of angular positions relative to the longitudinal axis of the second passage. A spacer received in the second passage of the housing is engageable with the fastener and the longitudinal member. A member includes means for applying a force to prevent relative movement between the fastener and the housing when the longitudinal member is disengaged from the spacer and the spacer engages the fastener. The member includes means for permitting manual movement of the fastener and the housing relative to each other against the force when the longitudinal member is disengaged from the spacer and the force is applied. A clamping mechanism clamps the longitudinal member, the spacer and the housing to the fastener to prevent movement of the fastener relative to the housing. None of the cited prior art describes or suggests an apparatus as set forth in claim 24.

As discussed above, the Farris et al. patent does not describe or suggest a member including means for applying a force to prevent relative movement between a fastener and a housing when a longitudinal member is disengaged from a spacer and the spacer engages the fastener. Also, the Farris et al. patent does not describe

or suggest a member including means for permitting manual movement of a fastener and a housing relative to each other against a force preventing relative movement when a longitudinal member is disengaged from a spacer and the force is applied. Thus, claim 24 is allowable.

Claims 25-44 depend from claim 24 and are allowable for the specific recitations therein and for the same reasons as claim 24.

Claim 45 recites an apparatus including a longitudinal member connectable with a bone portion. A fastener having a longitudinal axis is engageable with a bone portion to connect the longitudinal member to the bone portion. A housing has a first passage configured to receive the longitudinal member. The housing has a second passage with a longitudinal axis extending transverse to the first passage. The fastener extends through an opening in the housing into the second passage and is movable relative to the housing. The longitudinal axis of the fastener is positionable in any one of a plurality of angular positions relative to the longitudinal axis of the second passage. A spring member has means for applying a force to prevent relative movement between the fastener and the housing. The spring member includes means for permitting manual movement of the fastener and the housing relative to each other against the force when the force is applied. A clamping mechanism clamps the longitudinal member and the housing to the fastener to prevent movement of the fastener relative to the housing.

The Farris et al. patent does not describe or suggest a spring member having means for applying a force to prevent relative movement between a fastener and a housing. Furthermore, the Farris et al. patent does not describe or suggest a spring member including means for permitting manual movement of a fastener and a

housing relative to each other against a force preventing relative movement when the spring member applies the force. Thus, claim 45 is allowable.

Claim 46 depends from claim 45 and is allowable for the specific recitations therein and for the same reasons as claim 46.

Claim 47 recites an apparatus including a longitudinal member connectable with a bone portion. A fastener having a longitudinal axis is engageable with the bone portion to connect the longitudinal member to the bone portion. A housing has a first passage configured to receive the longitudinal member. The housing has a second passage with a longitudinal axis extending transverse to the first passage. The fastener extends through an opening in the housing into the second passage. The housing is movable relative to said fastener. The longitudinal axis of the second passage is positionable in any one of a plurality of angular positions relative to the longitudinal axis of the fastener. A spacer received in the second passage of the housing is engageable with the fastener and the longitudinal member. A member applies a force to hold the longitudinal axis of the second passage of the housing in any one of the plurality of angular positions relative to the longitudinal axis of the fastener when the longitudinal member is disengaged from the spacer and the spacer engages the fastener. The fastener and the housing being manually movable relative to each other against the force when the longitudinal member is disengaged from the spacer and the member applies the force. A clamping mechanism clamps the longitudinal member, the spacer and the housing to the fastener to prevent movement of the housing relative to the fastener.


The Farris et al. patent does not describe or suggest a member applying a force to hold a longitudinal axis of a second passage of a housing in any one of a plurality of angular positions relative to a longitudinal axis of a fastener when a

longitudinal member is disengaged from a spacer and the spacer engages the fastener. Also, the Farris et al. patent does not describe or suggest a fastener and a housing being manually movable relative to each other against a force that holds a longitudinal axis of a second passage of the housing in any one of a plurality of angular positions relative to a longitudinal axis of the fastener when a longitudinal member is disengaged from a spacer and a member applies the force. Thus, claim 47 is allowable.

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,


James L. Tarolli
Reg. No. 36,029

TAROLLI, SUNDHEIM, COVELL
& TUMMINO L.L.P.
526 Superior Avenue, Suite 1111
Cleveland, Ohio 44114-1400
Phone: (216) 621-2234
Fax: (216) 621-4072
Customer No. 26,294